

CHAPTER 7

HAND SEWING ON CANVAS AND WEBBING

7-1. HAND SEWING

Repairs on canvas and webbing are made by hand sewing only when it is not possible to use a sewing machine. Hand sewing is used when electrical power is not available. It is used when the canvas or webbed item is too bulky to fit under the needle of the sewing machine or when repairs are made on a tent that is set up.

7-2. SAILMAKER'S NEEDLE

A sailmaker's needle (Figure 7-1) is designed to penetrate thick canvas. It has a triangular shape that tapers to a sharp point at one end and rounds off and has a large eye at the other end. It is used to make all the hand-sewn stitches used on canvas except the lockstitch. Certain preparations must be made before a sailmaker's needle is used to repair canvas or webbing.

a. Estimating the Amount of Thread. The fabric repair specialist estimates how much thread will be needed to complete a repair by first determining how many strands of thread should be used. The weight of the cloth and the type of the repair determine the strands to use. Very heavy canvas and areas that get a lot of stress are repaired with four strands of thread instead of two strands to add strength to the repair. To estimate how much thread is needed to make a repair, measure the damage and determine the total length of the repair seam. Cut the thread as follows:

(1) Two-Strand Thread. Measure and cut a piece of thread six times longer than the total length of the repair seam.

(2) Four-Strand Thread. Measure and cut a piece of thread 12 times longer than the total length of the repair seam.



Figure 7-1. Sailmaker's needle

b. Waxing the Thread. The fabric repair specialist uses technical beeswax (NSN 9160-00-253-1173) to wax the piece of thread to keep it from fraying and to protect it from mildew and the weather. Waxing the thread helps the thread to pass more easily through the hole made by the sailmaker's needle. To wax a piece of thread (Figure 7-2)--

- (1) Hold one end of the thread against the piece of beeswax with the thumb of one hand.
- (2) Grasp the thread, and pull the entire length of the thread across the surface of the beeswax with the other hand.
- (3) Repeat these steps until the thread is sticky.

c. Threading the Needle. The fabric repair specialist threads the needle with waxed thread. To thread a sailmaker's needle (Figure 7-3)--

- (1) Fold over the piece of thread to form a small loop. Make the loop near one end of the thread if two strands are used. Make the loop at a point halfway between the ends if four strands are used.
- (2) Stick the loop through the eye of the needle.
- (3) Pull half of the thread through the eye, and make the ends even.
- (4) Tie the ends in a knot.

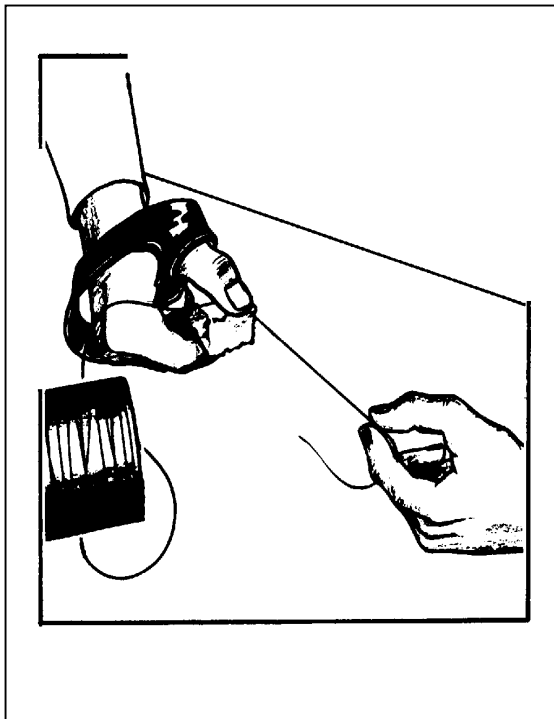


Figure 7-2. Waxing the thread

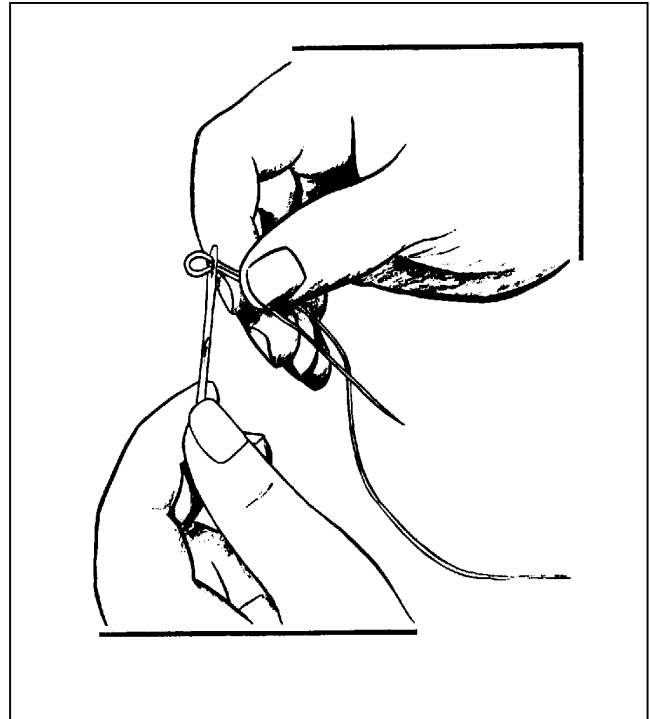


Figure 7-3. Threading a sailmaker's needle

d. Rewaxing the Thread. The fabric repair specialist rewaxes the thread for added protection. To rewax the thread (Figure 7-4)--

- (1) Hold the thread near the needle firmly with one hand.
- (2) Grasp a section of thread with the fingertips of the other hand, and twist the strands together.
- (3) Rub this section across the surface of the beeswax.
- (4) Repeat these steps until the entire length of the thread has been rewaxed.

e. Putting on the Sewing Palm. The fabric repair specialist wears a sewing palm to protect the hand while sewing with the sailmaker's needle. The palm has a metal inset which is used to push the needle through canvas or webbing. To put on a sewing palm (Figure 7-5)--

- (1) Grasp the sewing palm with the left hand so that the smaller (thumb) opening is on the right and the metal inset is facing up.
- (2) Turn the right hand so that the palm is facing up.
- (3) Slip the four fingers of the right hand through the larger opening, and slip the thumb through the smaller opening.

NOTE: These instructions are for a right-handed person. A left-handed person should get a sewing palm designed to be worn on the left hand and should change left to right and right to left in the instructions above.

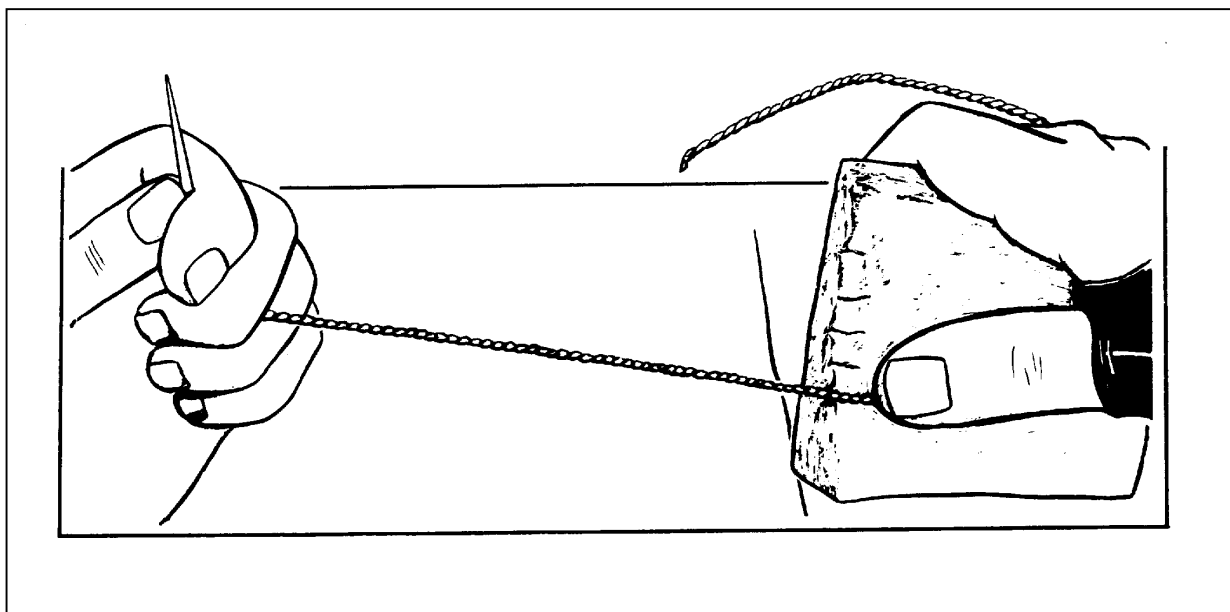


Figure 7-4. Rewaxing thread

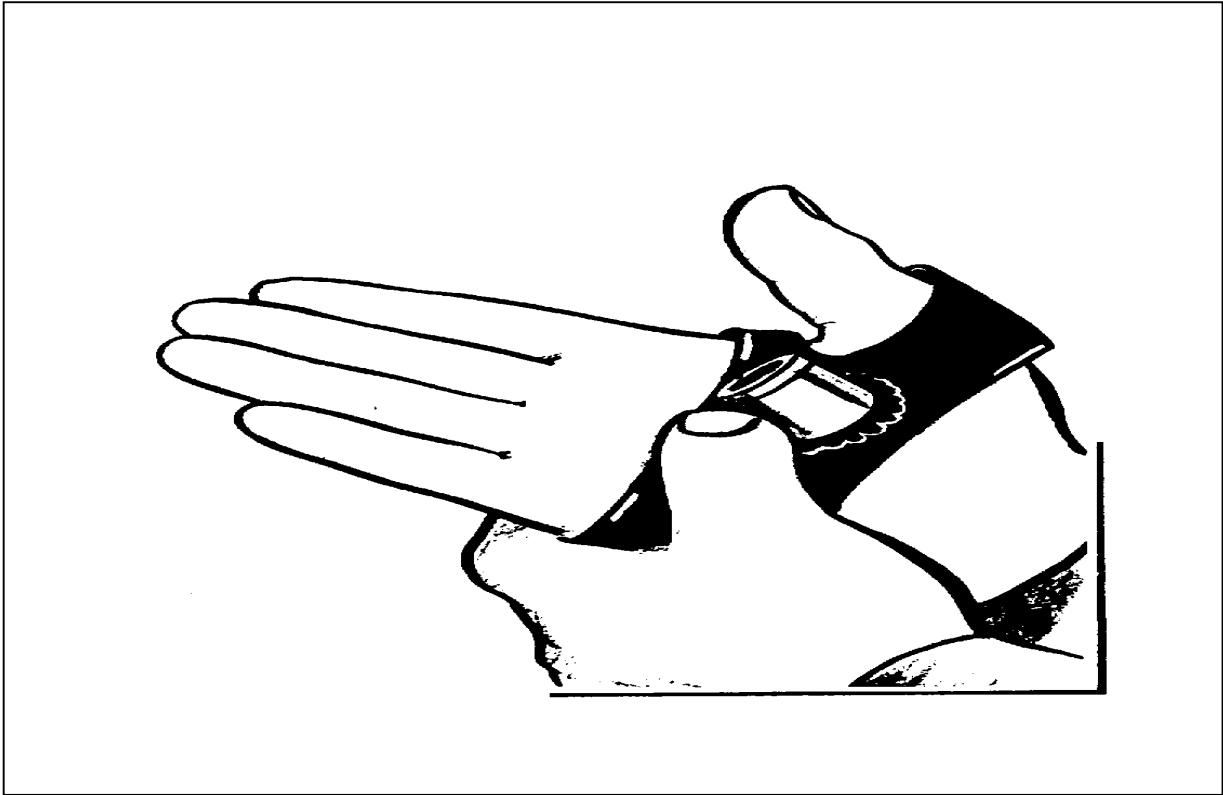


Figure 7-5. Putting on a sewing palm

7-3. SADDLER'S SEWING AWL

The saddler's sewing awl (Figure 7-6) is a sewing tool designed to make a lockstitch by hand. It has a bulb-shaped, wooden handle which holds a bobbin and extra needles. The bobbin feeds waxed thread to a needle attached to the tapered end of the handle. The sewing awl is equipped with two straight needles and one curved needle. The straight needles are used to make repairs in flat areas where there is plenty of room to work. The curved needle is used in areas where there is little room in which to work with the awl, such as inside corners. To thread a sewing awl--

- a. Remove the bobbin cap, and take out the bobbin. If necessary, refill the metal bobbin by wrapping waxed thread around it.
- b. Unwind 6 inches of thread, and stick the end of the thread inside the handle. Pull it out through the hole in the side of the handle.
- c. Put the bobbin back inside the handle, and replace the bobbin cap.
- d. Pull the thread down the handle, and wrap it around the tension post one time. Pass the end of the thread under the thread coming out of the hole so that the thread will feed freely. See the inset on Figure 7-6.
- e. Unscrew and remove the chuck cap.

- f. Stick the end of the thread in the groove beside the tension post, and pass the end of the thread through the hole in the metal cap.
- g. Stick the needle into the chuck so that the groove in the needle is aligned with the groove in the handle.
- h. Thread the needle.
- i. Stick the end of the thread through the chuck cap, and then pass the chuck cap over the needle. Screw the cap tightly on the chuck to hold the needle in place. Do not catch the end of the thread inside the chuck cap.

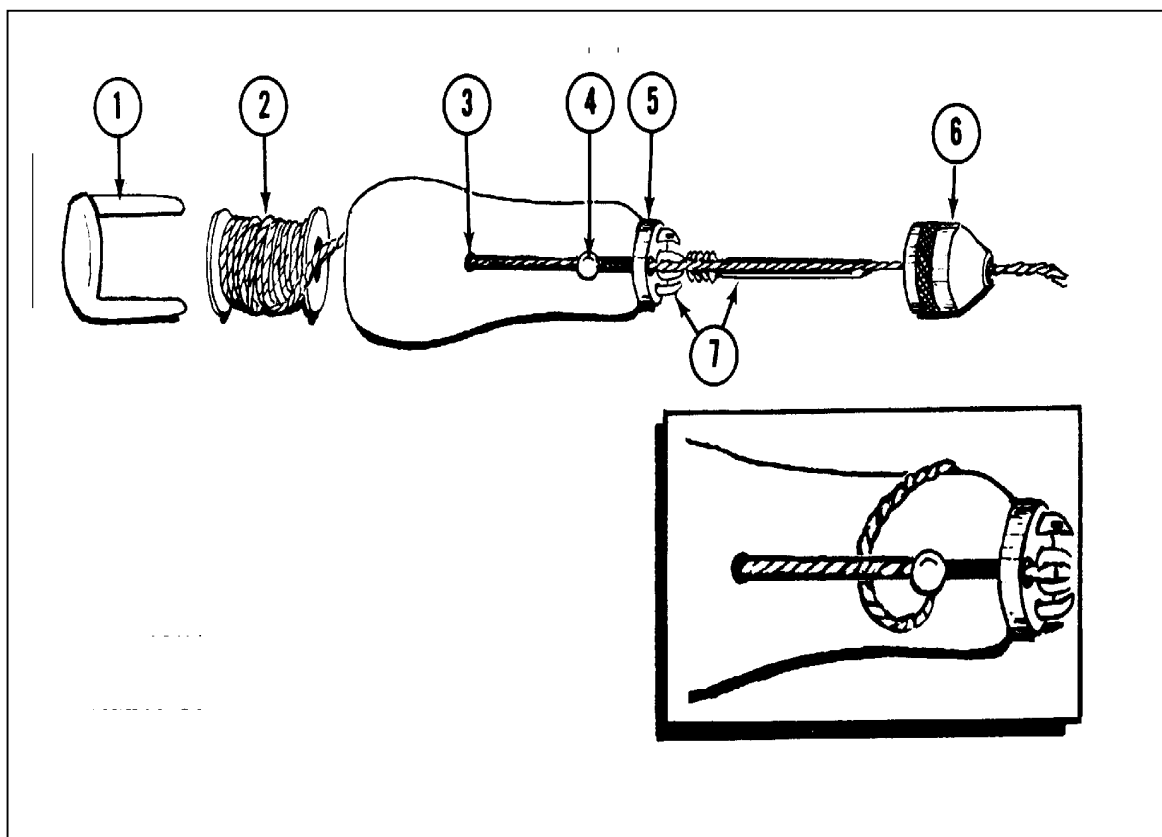


Figure 7-6. Threaded saddler's sewing awl

7-4. HAND STITCHES

There are six hand stitches used to repair canvas and webbing when machine repairs are not possible. Three of these stitches are also used to repair clothing. They are the running stitch, the backstitch, and the felling stitch. The round stitch and the fishbone stitch are used in the repair of canvas and webbing only. The lockstitch, made by hand using a sewing awl, is identical to the stitch made by a sewing machine.

a. **Running Stitch.** The running stitch (Figure 7-7) is also called the flat stitch in canvas repair. It is used to hold two pieces of canvas or webbing together until machine repairs can be made. To make a row of running stitches--

(1) Push the sailmaker's needle through the canvas or webbing, and pull the thread through to the knot.

(2) Backstitch to tack the beginning of the row. See paragraph below.

(3) Push the needle down through the canvas or webbing and then up through the canvas or webbing.

(4) Continue to make one or two stitches at a time to the end of the row. Make the stitches uniform in appearance and the same distance apart. Do not try to weave the needle in and out several times, because the canvas and webbing are too thick and stiff.

(5) Backstitch to tack the end of the row.

(6) Make a knot in the thread close to the canvas, and cut off the remaining thread.

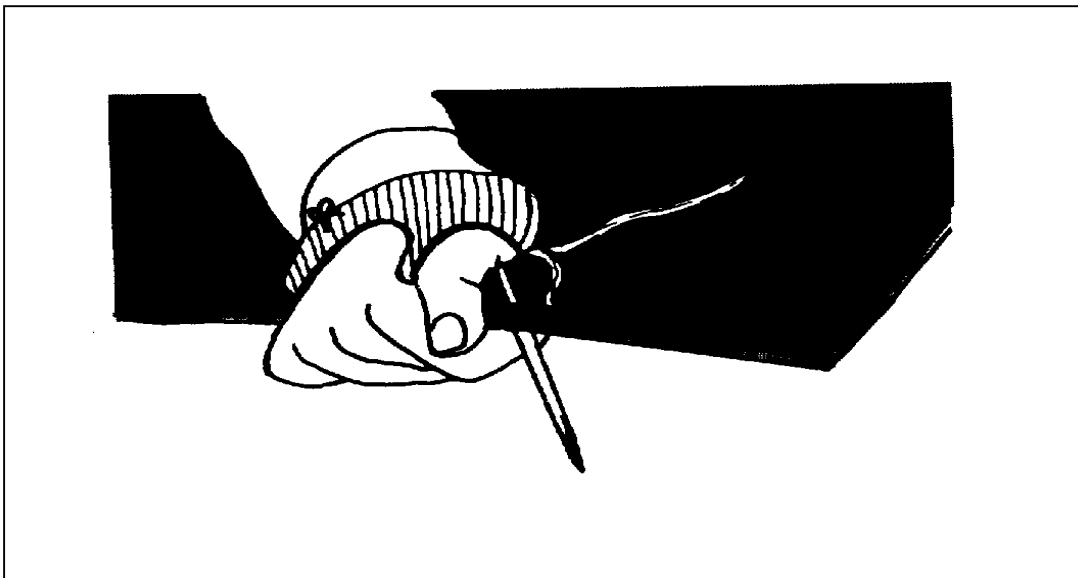


Figure 7-7. Running stitch on canvas

b. **Backstitch.** The backstitch (Figure 7-8) is used on canvas to close an open seam and to tack the beginning and the end of a row of hand stitches. To make a row of backstitches--

(1) Push the sailmaker's needle through the canvas or webbing, and pull the thread through to the knot.

(2) Tack the beginning of the row by tacking two small stitches, one on top of the other.

(3) Push the needle up through the canvas or webbing one stitch length from the first two stitches.

(4) Take one stitch back, pushing the needle down into the canvas or webbing at the end of the first two stitches.

(5) Push the needle up through the canvas or webbing one stitch length in front of the previous stitch.

(6) Stitch back, pushing the needle down into the canvas or webbing at the end of the previous stitch.

(7) Continue to stitch to the end of the row as in 5 and 6 above.

(8) Tack the end of the row by taking two stitches, one on top of the other.

(9) Make a knot in the thread close to the canvas, and cut off the remaining thread.

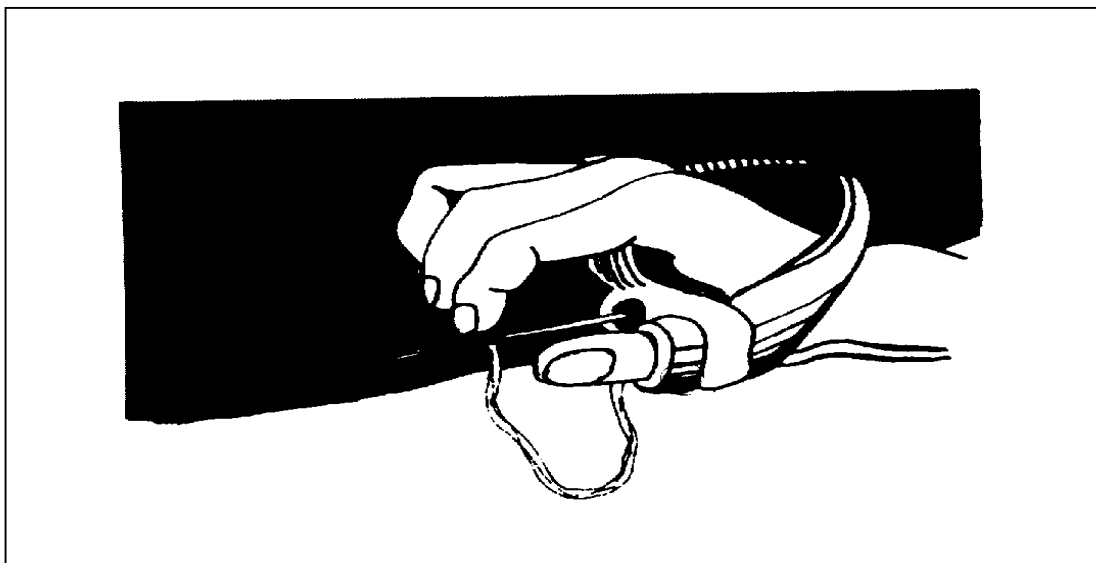


Figure 7-8. Backstitch on canvas

c. Felling Stitch. The felling stitch (Figure 7-9) is also called the overhand stitch in canvas repair. It is used to attach a patch by hand. To make a row of felling stitches--

(1) Push the sailmaker's needle through the canvas, and pull the thread through the canvas to the knot.

(2) Backstitch to tack the beginning of the row.

(3) Push the needle down vertically into the canvas at a point that is just beyond the folded edge of the patch.

- (4) Push the needle back up through the canvas and the patch at a diagonal angle.
- (5) Continue to take first a vertical stitch on top and then a diagonal stitch underneath until the repair is complete.
- (6) Backstitch to tack the row of stitches at the end.
- (7) Make a knot in the thread close to the canvas, and cut off the remaining thread.

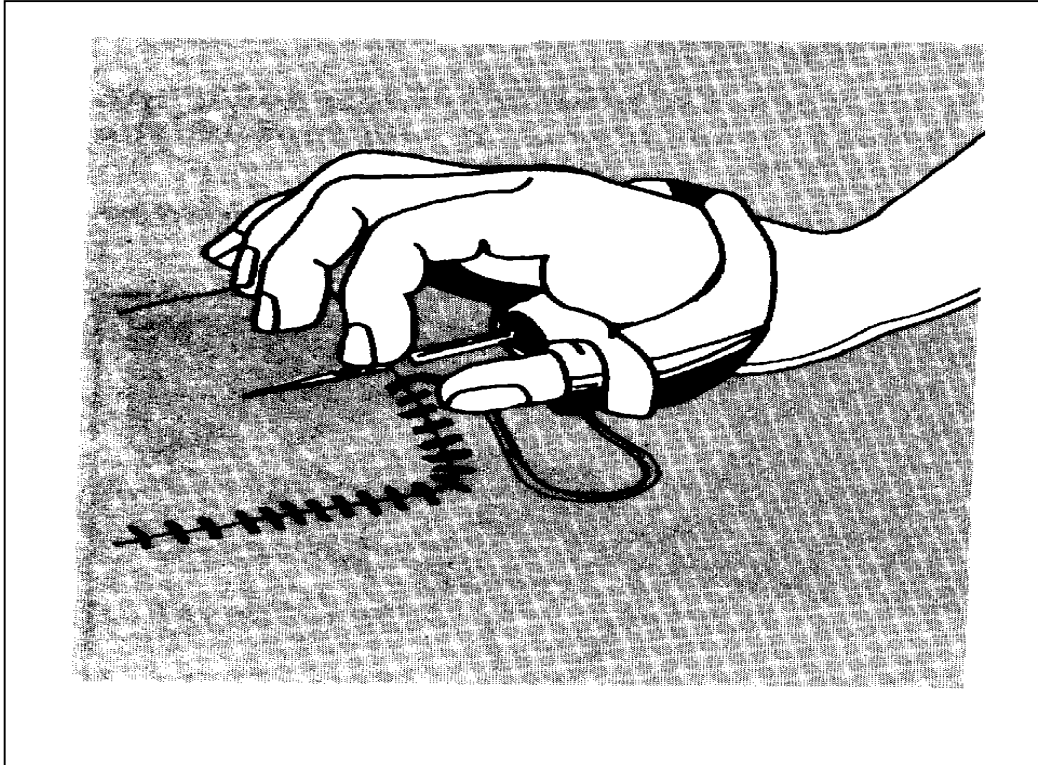


Figure 7-9. Felling Ssitch on canvas

d. Round Stitch. The round stitch (Figure 7-10) is used to hand sew a grommet in place. To make a row of round stitches--

- (1) Thread the sailmaker's needle, but do not tie the ends in a knot.
- (2) Push the needle down through the canvas, and draw the thread through the canvas until a 1/2-inch end is left.
- (3) Bring the thread and needle around the edge of the canvas and cross over the 1/2-inch end.
- (4) Push the needle down through the canvas again.

(5) Continue wrapping the thread around the edge and sticking the needle down into the canvas to cover the 1/2-inch end.

(6) At the end of the row of stitches, stick the needle under a 1/2-inch section of stitches, and pull the thread through to cover the end. Cut off the remaining thread.

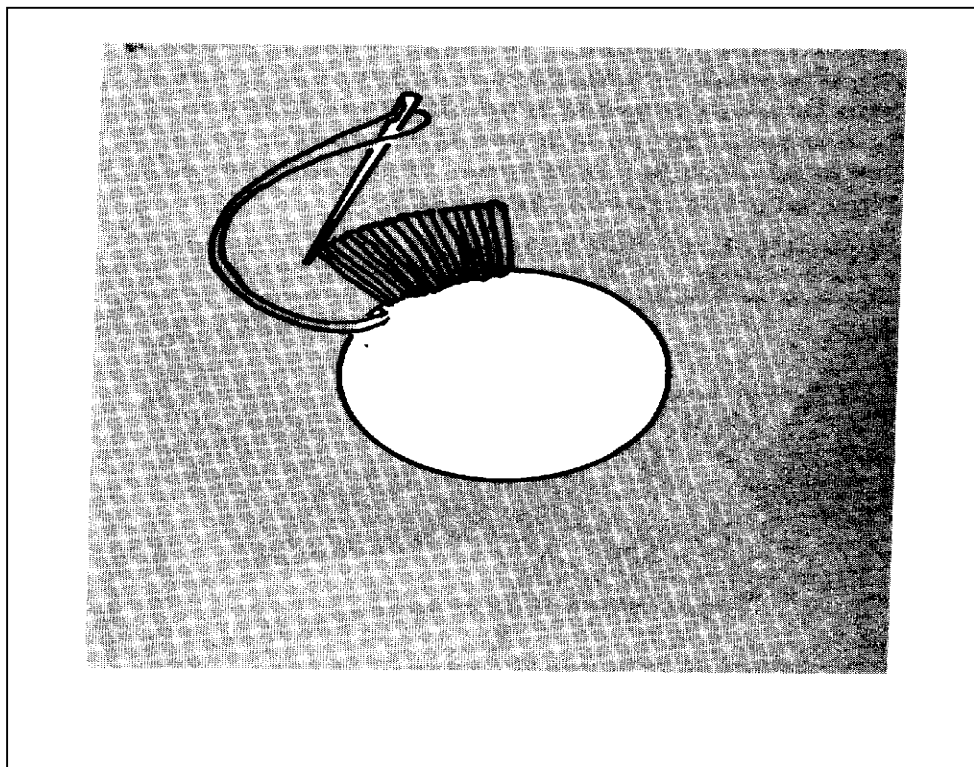


Figure 7-10. Round stitch

e. Fishbone Stitch. The fishbone stitch (Figure 7-11) is also called the baseball stitch. It is used to join the edges of a tear until the area can be patched. To make a row of fishbone stitches--

(1) Push the needle up through the canvas. Anchor the knot by taking two stitches, one on top of the other as shown.

(2) After taking the second stitch, bring the needle and thread up through the opening diagonally.

(3) Stick the needle down into the canvas on the opposite side of the opening.

(4) Continue to make diagonal stitches, coming up through the opening and alternating from one side to the other with the stitches.

(5) End the row by taking two stitches, one on top of the other.

- (6) Make a knot in the thread close to the canvas, and cut off the remaining thread.

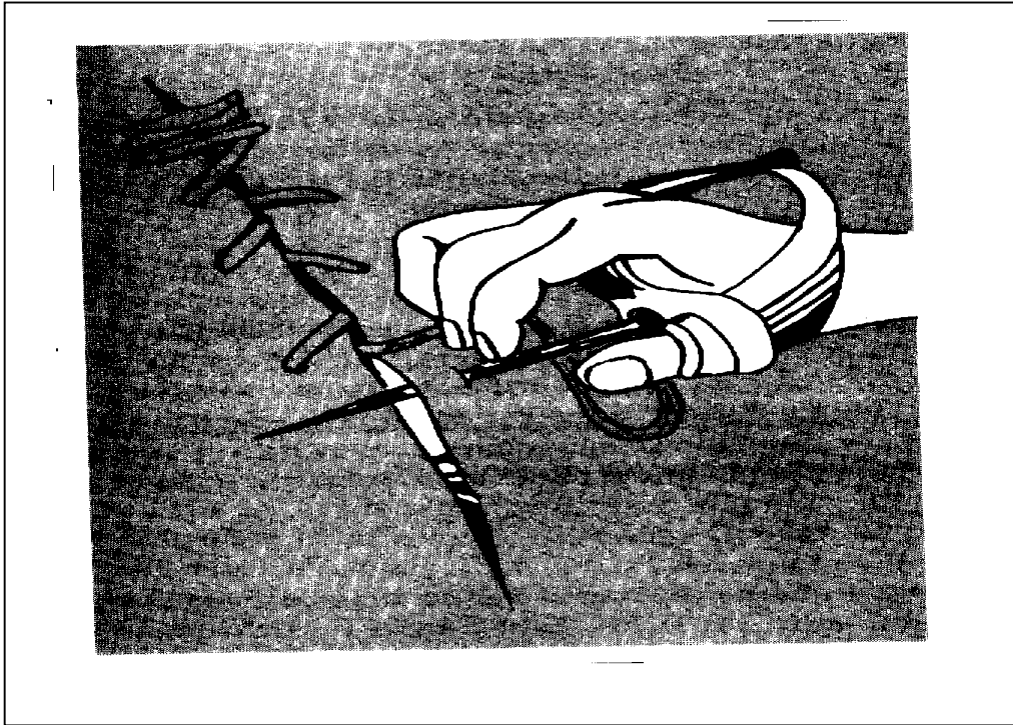


Figure 7-11. Fishbone stitch

f. Lockstitch. The lockstitch (Figure 7-12) is used to hand stitch extra-heavy canvas or several thicknesses of canvas together permanently. To make a row of lockstitches--

- (1) Thread a saddler's sewing awl, leaving 1/2 inch of thread sticking out of the needle.
- (2) Grasp the thread where it comes out of the hole in the handle. Pull enough thread out of the hole to reach from the beginning to the end of the area to be repaired. (Note: This thread is the bottom thread for the lockstitch row.)
- (3) Stick the needle down into the cloth at the beginning of the proposed stitch line.
- (4) With the needle still down in the cloth, grasp the end of the thread in the needle. Pull until all the slack thread has been drawn through the eye of the needle to the underside of the cloth.
- (5) Grasping the slack thread so that it cannot be pulled back through the cloth, pull the needle back out of the cloth.
- (6) Stick the needle down into the cloth, a stitch length away from the first hole.
- (7) Pull the needle out halfway, forming a loop on the underside with the thread.

(8) Stick the end of the slack thread through the loop, and pull all the slack thread through the loop.

(9) Grasp the slack thread firmly.

(10) Pull the needle all the way out of the cloth.

(11) Pull on the handle and the slack thread equally hard to tighten the stitch and to center the lock in the cloth.

NOTE: Pulling too hard on the handle causes the stitch to lock on top of the cloth. Not pulling hard enough on the handle causes the stitch to lock on the underside of the cloth. Equal tension on both threads results in a stitch correctly locked halfway between the top and the bottom.

(12) Before taking each new stitch, pull 2 to 3 inches of thread from the bobbin.

(13) Continue stitching to the end of the row.

(14) Finish stitching by cutting the loop formed on the last stitch and tying the two loose ends on the underside in a square knot.

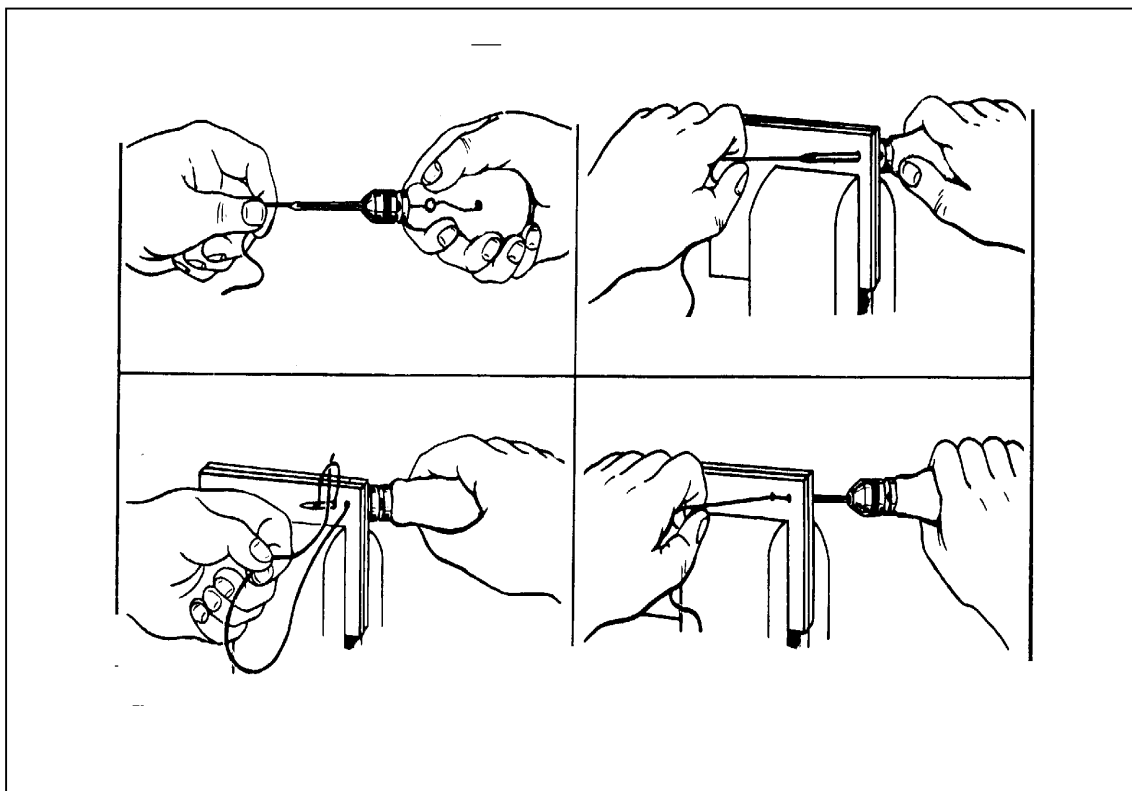


Figure 7-12. Lockstitch made with saddler's sewing awl